

ABSTRACT

The present invention provides a process for preparing a fluorine-containing polymer having few branched chains and little weight change in high temperatures, which is a new process wherein composition distribution substantially does not occur. The fluorine-containing polymer is prepared by a batch copolymerization process conducted under conditions of reduced temperature of at least 0.95 and reduced pressure of at least 0.80 of the critical constant calculated from critical temperature, critical pressure and composition ratio of each monomer in the gaseous phase of the reaction vessel using the Peng-Robinson formula; wherein when the number of monomer components in the target polymer is represented as n (n is an integer of 2 or larger), the name of each monomer component is represented as A_1, A_2, \dots, A_n , the weight percentage of each monomer component A_1, A_2, \dots, A_n of the target polymer composition is represented as a_1, a_2, \dots, a_n (%) (a satisfies $\sum_n a_n = 100$), the weight percentage of each monomer component of the initial monomer composition is represented as a'_1, a'_2, \dots, a'_n (%) (a' satisfies $\sum_n a'_n = 100$ and a'_1, a'_2, \dots, a'_n is determined in a constant manner depending on predetermined polymerization conditions) and specific gravity of the gaseous phase monomers when polymerizing/specific gravity of the target polymer is represented as B , the composition weight ratio of additional monomers is calculated for each monomer from the formula

25

$$(a_1 - a'_1 \times B) : (a_2 - a'_2 \times B) \dots (a_n - a'_n \times B)$$

in the order of components $A_1, A_2, \dots A_n$, and additional monomers containing additional monomers in the composition weight ratio of additional monomers are added.